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SEWAGE AND WATER WORKS CONSTRUCTION

Donald A. E. Beer, et al

Public Health Service
Washington, D. C.

1959

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SEWAGE AND WATER WORKS CONSTRUCTION—1959

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Other related publications:

Sewage Treatment Works Contract Awards, 1952-1957
Public Health Service Publication No. 633

Sewage and Water Works Construction, 1957
Public Health Service Publication No. 608

Sewage and Water Works Construction, 1958
Public Health Service Publication No. 673

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CONTENTS

	Page
Section I--GENERAL PRESENTATION OF SEWAGE AND WATER WORKS CONTRACT AWARDS	1
A. Contract Awards--1959	1
B. Method of Data Collection	1
Table 1: Annual Contract Awards--1952-1959	2
Table 2: Monthly Contract Awards--1959	2
Table 3: Total Contract Awards by States--1959	3
Table 4: Distributed Total Contract Awards by States--1959	4
Section II--CONTRACT AWARDS--BASIC DATA--1959	5
A. Sewage Treatment Works Construction	5
Table 5: By Population Size Groups	5
Table 6: By Contract Size Groups	6
Table 7: By Drainage Basins	6
Table 8: By States	7
B. Collecting Sewer Construction	8
Table 9: By Population Size Groups	8
Table 10: By Contract Size Groups	8
Table 11: By Drainage Basins	9
C. Water Works Construction	9
Table 12: By Population Size Groups	10
Table 13: By Contract Size Groups	11
Table 14: By Drainage Basins	11
Table 15: By States	12
D. Combination Construction	13
Table 16: By Population Size Groups	13
Table 17: By Contract Size Groups	13
Table 18: By Drainage Basins	14

SECTION I—GENERAL PRESENTATION OF SEWAGE AND WATER WORKS CONTRACT AWARDS

A. Contract Awards—1959

Contract awards in the sewage and water works field in 1959 reached a record annual level close to $1.2 billion. The total dollar value is broken down as follows:

Sewage treatment	$349.2 million
Collecting sewers	335.8
Water works	503.9
	$1,188.9

Contracts associated with both water works and collecting sewers were awarded at record levels. Contracts covering sewage treatment facilities stood at approximately the level experienced in 1957. Annual figures show a 20.3% rise over 1958 figures for water works contracts, an 8.4% rise over 1958 figures for collecting sewer contracts, and a 10.3% decrease from 1958 figures for sewage treatment contracts.

Each of the above totals is based upon an identified and an apportioned figure. The identified contracts are those for which the descriptive information available clearly states a single field of construction. Those contracts that cover more than a single area are called "combination" contracts. These combination contracts are then apportioned to the sewage treatment works, collecting sewers, and water works categories on the basis of known national experience in each of these.

If the contract award figures are analyzed on a constant dollar basis, the conclusions will be altered slightly (See Table 1). For example, the total dollar value of contract awards in the sewage and water works field was not so high in 1959 as it was in one other year, 1956. Sewage treatment works contracts fell substantially short of the level of the three prior years. While collecting sewer contracts exceeded the 1958 total, they did not equal the total in either 1955 or 1956. A similar increase over 1958 figures exists for water works contracts which were exceeded only by those in 1956. These figures illustrate the effect of the rapid increase in construction costs, which seems likely to continue.

B. Method of Data Collection

The contract award data presented in this publication for the year 1959 result from the careful examination of over 25,000 contract notifications in the sewage and water works construction and related fields. All notifications of similar contracts awarded in the same geographical area are checked to reduce the chance of duplication. Certain contracts, primarily those covering sewage treatment plants, are checked and verified by the various State water pollution control agencies.

The data on which this report is based were obtained from:

1. F. W. Dodge Corporation, daily reports on construction in the sewage and water works fields in the 37 eastern States.

2. Construction Daily Reports, McGraw-Hill Company, New York.

3. Various construction news periodicals, such as, Construction News Bulletin, Pacific Architect and Builder, Rocky Mountain Construction, and Southwest Builder and Contractor.

Practically all of the information for the 37 eastern States is obtained from daily reports of the F. W. Dodge Corporation.

The data presented are composed of contracts awarded by municipalities, special districts, other governmental bodies, and various institutions, resorts, recreation centers, etc. A few contracts are included for industries where the cost of such facilities can be readily identified, and where it is possible to ascertain that the facilities are primarily for the disposal of sanitary wastes or for domestic water works facilities.

TABLE 1

ANNUAL CONTRACT AWARDS - SEWAGE TREATMENT WORKS, COLLECTING SEWERS, AND WATER WORKS - 1952 to 1959

(millions of dollars)

Year	SEWAGE TREATMENT		COLLECTING SEWERS		WATER WORKS		TOTAL	
	Actual	1955 $	Actual	1955 $	Actual	1955 $	Actual	1955 $
1952.....	137	159	225	261	227	263	589	683
1953.....	187	206	286	314	283	311	756	831
1954.....	229	241	244	256	293	308	766	805
1955.....	201	201	301	301	394	394	896	896
1956.....	354	338	305	291	441	420	1,100	1,049
1957.....	351	320	247	225	457	416	1,055	961
1958.....	389	338	310	269	419	364	1,118	971
1959.....	349	289	336	278	504	417	1,189	984

NOTES:

1. The Engineering News-Record Construction Cost Index is used to change actual dollars to 1955 dollars.
2. The Public Health Service sewage treatment data prior to 1956 are composed of identified contracts only. Since 1956 the figures include an amount apportioned to sewage treatment works from the "combination" contracts.
3. Data on collecting sewers prior to 1957 are obtained by subtracting Public Health Service sewage treatment data from the U. S. Department of Commerce sewer data, which includes sanitary and storm sewerage systems as well as sewage treatment works. The data for 1957, 1958 and 1959 on collecting sewers were assembled by the Public Health Service and do not include storm sewers.
4. The water works data prior to 1957 are based on records maintained by the U. S. Department of Commerce. The 1957, 1958 and 1959 data are obtained by the Public Health Service.

TABLE 2

MONTHLY CONTRACT AWARDS - SEWAGE TREATMENT WORKS, COLLECTING SEWERS, AND WATER WORKS - FOR 1959

(millions of dollars)

1959	SEWAGE TREATMENT		COLLECTING SEWERS		WATER WORKS		TOTAL	
	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
January.....	22.6	22.6	16.4	16.4	69.4	69.4	108.4	108.4
February.....	28.4	51.0	22.4	38.8	45.0	114.4	95.8	204.2
March.....	33.5	84.5	24.0	62.8	30.5	144.9	88.0	292.2
April.....	28.0	112.5	31.1	93.9	37.3	182.2	96.4	388.6
May.....	36.3	148.8	34.4	128.3	67.9	250.1	138.6	527.2
June.....	57.6	206.4	32.5	160.8	46.0	296.1	136.1	663.3
July.....	35.4	241.8	26.6	187.4	52.4	348.5	114.4	777.7
August.....	24.6	266.4	36.0	223.4	35.6	384.1	96.2	873.9
September.....	20.3	286.7	32.1	255.5	35.6	419.7	88.0	961.9
October.....	14.8	301.5	28.5	284.0	29.4	449.1	72.7	1034.6
November.....	20.8	322.3	33.4	317.4	23.6	472.7	77.8	1112.4
December.....	26.9	349.2	18.4	335.8	31.2	503.9	76.5	1188.9

TABLE 3

1959 CONTRACT AWARDS BY STATES

STATE	TOTAL	SEWAGE TREATMENT	COLLECTING SEWERS	WATER WORKS	COMBINATION*
Alabama	$ 31,008,087	$ 4,673,815	$ 4,069,146	$ 22,117,897	$ 147,229
Alaska	2,869,632	---	359,455	1,405,532	1,104,645
Arizona	15,211,112	1,728,158	4,024,944	8,849,530	608,480
Arkansas	6,526,926	2,073,439	268,263	4,003,993	181,231
California	152,302,539	26,299,528	41,613,826	81,958,078	2,431,107
Colorado	5,094,608	1,920,321	937,284	2,237,003	---
Connecticut	13,541,287	3,248,918	6,615,680	3,539,339	137,350
Delaware	3,031,376	1,409,761	173,984	1,419,006	28,625
District of Columbia	4,584,825	879,378	2,134,880	1,138,664	431,903
Florida	39,542,672	7,234,581	15,718,571	7,239,308	9,350,212
Georgia	17,087,555	10,015,922	2,681,928	3,418,990	970,715
Hawaii	4,136,800	942,231	1,060,297	1,534,272	---
Idaho	5,615,600	943,594	4,162,231	500,492	9,283
Illinois	81,316,809	37,074,963	18,463,971	21,516,236	4,261,639
Indiana	30,426,303	16,918,895	7,940,987	5,465,418	101,003
Iowa	11,693,257	4,044,871	4,810,087	2,643,536	194,763
Kansas	12,542,293	5,994,497	2,640,684	3,825,173	81,939
Kentucky	19,816,727	4,624,762	6,911,262	8,184,799	95,904
Louisiana	17,229,634	2,711,046	4,018,034	7,082,243	3,418,311
Maine	1,302,086	420,398	313,725	567,963	---
Maryland	28,025,991	3,530,497	2,512,219	14,282,078	7,701,197
Massachusetts	36,394,841	5,405,221	4,805,890	25,277,898	905,832
Michigan	36,654,797	13,029,240	8,687,278	13,455,066	1,483,213
Minnesota	24,319,926	6,352,680	8,657,786	7,544,574	1,764,886
Mississippi	5,581,716	1,654,087	1,707,791	955,868	1,263,970
Missouri	24,597,669	4,001,082	7,284,859	12,654,402	657,326
Montana	7,890,058	2,331,372	1,202,092	4,195,535	161,059
Nebraska	6,600,688	2,226,962	2,182,766	1,220,162	970,798
Nevada	942,829	706,939	40,221	135,989	59,680
New Hampshire	3,358,433	1,852,235	147,385	1,358,813	---
New Jersey	32,760,404	12,050,462	9,253,111	10,738,825	718,006
New Mexico	2,718,975	1,341,862	---	1,121,881	255,232
New York	83,835,313	23,353,689	25,055,076	34,439,383	987,165
North Carolina	24,923,528	9,186,674	4,474,657	8,210,706	3,051,491
North Dakota	5,164,863	502,207	566,750	3,352,437	743,469
Ohio	59,622,732	19,842,774	19,721,603	17,391,391	2,666,965
Oklahoma	11,829,647	2,219,794	1,528,601	7,820,312	260,940
Oregon	7,141,455	2,000,329	3,174,996	1,954,695	11,435
Pennsylvania	82,085,275	27,057,322	22,485,649	21,892,778	10,649,526
Rhode Island	2,616,761	863,300	1,114,451	639,010	---
South Carolina	8,528,864	1,433,552	1,281,780	5,707,547	105,985
South Dakota	2,800,356	1,379,180	131,217	1,249,990	39,969
Tennessee	18,111,243	7,877,454	3,257,157	6,313,660	662,972
Texas	86,816,652	7,928,011	28,153,216	44,234,591	6,500,834
Utah	4,282,831	1,123,954	828,465	2,154,808	175,604
Vermont	2,808,606	2,635,034	1,500	157,272	14,800
Virginia	16,644,817	6,562,025	3,844,577	5,217,616	1,020,599
Washington	41,727,280	6,030,123	8,967,932	26,391,530	337,695
West Virginia	12,883,806	11,054,099	829,451	1,000,256	---
Wisconsin	29,109,070	4,719,469	10,455,802	11,042,757	2,891,042
Wyoming	3,215,750	2,103,003	69,603	571,718	471,426
TOTAL	$1,188,875,305	$325,513,710	$311,943,120	$481,331,030	$70,087,455

*This includes contracts whose descriptive information covers more than a single category of construction (e.g. sewage treatment, collecting sewers or water works).

TABLE 4

1939 CONTRACT AWARDS (Distributed)
BY STATES

STATE	TOTAL	SEWAGE TREATMENT	COLLECTING SEWERS	WATER WORKS
Alabama	$ 31,008,087	$ 4,723,488	$ 4,119,289	$ 22,165,310
Alaska	2,869,632	372,691	735,676	1,761,265
Arizona	15,211,112	1,933,450	4,232,180	9,045,482
Arkansas	6,526,926	2,134,584	329,986	4,062,356
California	152,302,539	27,119,749	42,441,813	82,740,977
Colorado	5,094,608	1,920,321	937,284	2,227,003
Connecticut	13,541,287	3,295,258	6,662,459	3,583,570
Delaware	3,031,376	1,419,419	183,733	1,428,224
District of Columbia	4,584,825	1,025,096	2,281,977	1,277,752
Florida	39,542,672	10,389,209	18,903,068	10,250,395
Georgia	17,087,555	10,343,427	3,012,534	3,731,594
Hawaii	4,136,801	942,231	1,660,297	1,534,272
Idaho	5,615,600	946,726	4,165,393	503,481
Illinois	81,316,809	38,512,779	19,915,500	22,888,630
Indiana	30,426,303	16,952,972	7,975,387	5,497,944
Iowa	11,693,257	4,110,581	4,876,420	2,706,256
Kansas	12,542,293	6,022,142	2,668,591	3,851,560
Kentucky	19,816,727	4,657,119	6,943,925	8,215,683
Louisiana	17,229,634	3,864,335	5,182,243	8,183,056
Maine	1,302,086	420,398	313,725	567,963
Maryland	28,025,991	6,128,771	5,135,093	16,762,127
Massachusetts	36,394,841	5,710,836	5,114,398	25,569,607
Michigan	36,654,797	13,529,655	9,192,431	13,932,711
Minnesota	24,319,926	6,948,127	9,258,871	8,112,928
Mississippi	5,581,716	2,080,533	2,138,274	1,362,909
Missouri	24,597,669	4,222,855	7,508,731	12,866,083
Montana	7,890,058	2,385,711	1,256,946	4,247,401
Nebraska	6,600,688	2,554,496	2,513,400	1,532,792
Nevada	942,829	727,074	60,547	155,208
New Hampshire	3,358,433	1,852,225	147,385	1,358,813
New Jersey	32,760,404	12,292,707	9,497,649	10,970,048
New Mexico	2,718,975	1,427,974	86,927	1,204,064
New York	83,835,313	23,686,744	25,391,285	34,757,284
North Carolina	24,923,528	10,216,204	5,513,934	9,193,390
North Dakota	5,164,863	753,043	819,961	3,591,859
Ohio	59,622,733	20,742,570	20,629,918	18,250,245
Oklahoma	11,917,684	2,307,831	1,617,472	7,904,344
Oregon	7,141,455	2,004,187	3,178,890	1,958,378
Pennsylvania	82,085,275	30,650,320	26,112,666	25,322,289
Rhode Island	2,616,761	863,300	1,114,451	639,010
South Carolina	8,528,864	1,469,310	1,317,876	5,741,678
South Dakota	2,800,356	1,392,666	144,830	1,262,861
Tennessee	18,111,243	8,101,131	3,482,952	6,527,160
Texas	86,816,652	10,121,300	30,367,271	46,328,081
Utah	4,282,831	1,183,200	888,272	2,211,359
Vermont	2,808,606	2,640,027	6,541	162,038
Virginia	16,644,817	6,906,361	4,192,172	5,546,284
Washington	41,727,281	6,144,056	9,082,944	26,500,279
West Virginia	12,883,806	11,054,099	829,451	1,000,256
Wisconsin	29,109,070	5,694,865	11,440,434	11,973,771
Wyoming	3,215,751	2,262,055	230,162	723,533
Total	$1,188,875,305	$349,160,218	$335,813,514	$503,901,573

Note: Combination contracts have been apportioned to the three categories on the basis of the known experience for the United States as a whole.

SECTION II—CONTRACT AWARDS—BASIC DATA--1959

This section presents the basic data as compiled; combination projects have not been apportioned. Tables of contract awards by population size groups, contract size groups, drainage basins and States are included.

The population size group tables do not refer to the population served. They represent the size of the community in which each contract was awarded. The population size groups of some contracts were unknown; these contracts consist primarily of schools, hospitals, military bases, and parks. The cumulative percentages shown in these tables are based on the known population groups.

A. Sewage Treatment Works Construction

The sewage treatment works are presented in two categories, namely, NEW PLANT and OTHER. The "NEW PLANT" classification includes stabilization ponds and appurtenances. The "OTHER" category includes replacements and additions to existing treatment plants, interceptors, and outfalls. This category also includes contracts whose costs cannot be separated between "New Plant" and "Other." Therefore, the "Other" classification may include a few new plants.

In 1959 the level of contracts awarded for construction of sewage treatment works in the United States reached a level of $349.2 million. This was a 10.3% decrease from the record $389 million in 1958. Of this amount $325.5 million covered contracts identified as to specific location and type of construction. The following tables, 5 through 8, inclusive, relate only to contracts exclusively pertaining to sewage treatment facilities.

The $325.5 million is made up of 1330 separate contracts. This level represents approximately that during both the two years prior to the last year in which the record level of $359.6 million was achieved.

Lists of the locations of contract awards for sewage treatment works are available upon request. Write to Chief, Basic Data Branch, Division of Water Supply and Pollution Control, Public Health Service, Washington 25, D. C.

TABLE 5

CONTRACT AWARDS—SEWAGE TREATMENT WORKS CONSTRUCTION--1959
BY POPULATION SIZE GROUPS

POPULATION SIZE GROUP	TOTAL				NEW PLANT				OTHER**			
	No.	Dollars	Cumulative***		No.	Dollars	Cumulative***		No.	Dollars	Cumulative***	
			No. %	$ %			No. %	$ %			No. %	$ %
Unknown population size	96	4,540,004	(*)	(*)	49	2,430,210	(*)	(*)	47	2,109,794	(*)	(*)
Under 500	105	5,080,679	8.5	1.6	68	2,689,941	15.1	2.9	37	2,390,738	4.7	1.0
500-1,000	136	9,694,367	19.5	4.6	74	5,050,529	31.5	8.3	62	4,643,838	12.6	3.1
1,000-2,500	176	19,649,298	33.8	10.7	88	11,437,458	51.0	20.6	88	8,211,84	23.9	6.7
2,500-5,000	187	32,122,983	48.9	20.7	69	12,799,196	66.3	34.4	118	19,323,787	39.0	15.2
5,000-10,000	143	38,115,556	60.7	32.6	53	17,709,348	78.0	53.4	92	20,406,208	50.7	24.1
10,000-25,000	156	59,526,603	73.3	51.2	43	22,326,710	87.6	77.4	113	37,199,893	65.1	40.4
25,000-50,000	75	34,603,384	79.4	61.9	17	9,655,544	91.4	87.8	58	24,947,84	72.5	51.4
50,000-100,000	51	16,796,224	83.5	67.2	9	2,494,407	93.3	90.4	42	14,301,817	77.9	57.7
100,000-250,000	66	29,601,039	88.9	76.4	15	6,830,326	96.7	97.8	51	22,770,713	84.4	67.7
250,000-over	137	75,783,573	100.0	100.0	15	2,070,794	100.0	100.0	122	73,712,779	100.0	100.0
Total	1,330	325,513,710			500	95,494,463			830	230,019,247		
*The unknown population as a percent of the grand total			7.2	1.4			9.8	2.5			5.7	0.9

**Interceptors; outfalls; additions, enlargements, and alterations to plants, etc.
***This is based on the known population groups.

TABLE 6

CONTRACT AWARDS - SEWAGE TREATMENT WORKS CONSTRUCTION - 1959
BY CONTRACT SIZE GROUPS

CONTRACT SIZE GROUP (Dollars)	TOTAL				NEW PLANT				OTHER*			
	No.	Dollars	Cumulative		No.	Dollars	Cumulative		No.	Dollars	Cumulative	
			No. %	$ %			No. %	$ %			No. %	$ %
Under 10,000.....	77	451,085	5.8	0.1	30	171,884	6.0	0.2	47	279,201	5.7	0.1
10,000 - 25,000.....	191	3,210,443	20.2	1.1	74	1,287,838	20.8	1.5	117	1,922,605	19.8	1.0
25,000 to 50,000.....	205	7,582,900	35.6	3.5	87	3,177,813	38.2	4.9	118	4,405,087	34.0	2.9
50,000 to 100,000.....	227	16,525,840	52.6	8.5	84	6,103,535	55.0	11.2	143	10,422,305	51.2	7.4
100,000 to 250,000....	295	47,507,842	74.8	23.1	117	17,998,637	78.4	30.1	178	29,509,205	72.7	20.2
250,000 to 500,000....	184	65,685,008	88.6	43.3	60	21,172,219	90.4	52.3	124	44,512,789	87.6	39.6
500,000 to 1,000,000..	104	74,358,265	96.5	66.1	38	27,577,616	98.0	81.1	66	46,780,649	95.5	59.9
1,000,000 to 5,000,000	44	84,171,607	99.8	92.0	10	18,004,921	100.0	100.0	34	66,166,686	99.6	88.7
5,000,000 - over.....	3	26,020,720	100.0	100.0	—	—	100.0	100.0	3	26,020,720	100.0	100.0
Total.....	1,330	325,513,710	—	—	500	95,494,463	—	—	830	230,019,247	—	—

*Interceptors, outfalls, additions, enlargements, and alterations to plants, etc.

TABLE 7

CONTRACT AWARDS - SEWAGE TREATMENT WORKS CONSTRUCTION - 1959
BY DRAINAGE BASINS

DRAINAGE BASINS	TOTAL		NEW PLANT		OTHER*	
	No.	Dollars	No.	Dollars	No.	Dollars
Northeast.....	64	20,018,892	16	5,429,705	48	14,589,187
North Atlantic.....	172	49,562,230	59	10,715,457	113	38,846,773
Southeast.....	144	34,503,561	57	13,855,074	87	20,648,487
Tennessee River.....	23	6,450,253	10	4,499,628	13	1,950,625
Ohio River.....	163	62,057,469	72	23,238,141	91	38,819,328
Lake Erie.....	30	7,039,762	9	1,354,573	21	5,685,189
Upper Mississippi.....	169	46,704,276	74	8,117,660	95	38,586,616
Western Great Lakes.....	52	22,391,727	11	2,332,090	41	20,059,637
Missouri River.....	123	13,392,379	63	5,952,822	60	7,439,557
Southwest - Lower Mississippi.....	119	13,540,282	40	3,548,716	79	9,991,566
Colorado River.....	13	3,315,479	2	426,316	11	2,889,163
Western Gulf.....	63	8,831,427	25	3,445,787	38	5,385,640
Pacific Northwest.....	70	9,203,935	24	3,162,870	46	6,041,065
California.....	110	24,649,660	32	7,040,118	78	17,609,542
Great Basin.....	11	2,910,147	4	1,684,847	7	1,225,300
Alaska.....	—	—	—	—	—	—
Hawaii.....	4	942,231	2	690,659	2	251,572
Total.....	1,330	325,513,710	500	95,494,463	830	230,019,247

*Interceptors, outfalls, additions, enlargements, and alterations to plants, etc.

TABLE 8

CONTRACT AWARDS - SEWAGE TREATMENT WORKS CONSTRUCTION - 1959
BY STATES

STATE	TOTAL	NEW PLANT	OTHER*
Alabama	$ 4,673,815	$ 2,045,910	$ 2,627,905
Alaska	---	---	---
Arizona	1,728,158	---	1,728,158
Arkansas	2,073,439	176,962	1,896,477
California	26,299,528	8,581,153	17,718,375
Colorado	1,920,321	946,600	973,721
Connecticut	3,248,918	2,745,115	503,803
Delaware	1,409,761	---	1,409,761
District of Columbia	879,378	---	879,378
Florida	7,234,581	5,300,579	1,934,002
Georgia	10,015,922	2,250,436	7,765,486
Hawaii	942,231	690,659	251,572
Idaho	943,594	138,245	805,349
Illinois	37,074,963	3,344,438	33,730,525
Indiana	16,918,895	2,581,849	14,337,046
Iowa	4,044,871	1,291,166	2,753,705
Kansas	5,994,497	2,017,465	3,977,032
Kentucky	4,624,762	2,147,756	2,477,006
Louisiana	2,711,046	1,376,759	1,334,287
Maine	420,398	---	420,398
Maryland	3,530,497	582,873	2,947,624
Massachusetts	5,405,221	98,400	5,306,821
Michigan	13,029,240	1,578,890	11,450,350
Minnesota	6,352,680	3,179,189	3,173,491
Mississippi	1,654,087	602,865	1,051,222
Missouri	4,001,082	291,171	3,709,911
Montana	2,331,372	1,705,444	625,928
Nebraska	2,226,962	864,038	1,362,924
Nevada	706,939	---	706,939
New Hampshire	1,852,235	---	1,852,235
New Jersey	12,050,462	2,032,127	10,018,335
New Mexico	1,341,862	446,660	895,202
New York	23,353,689	2,318,343	21,035,346
North Carolina	9,186,674	2,672,499	6,514,175
North Dakota	502,207	193,022	309,185
Ohio	19,842,774	7,381,736	12,461,038
Oklahoma	2,219,794	807,708	1,412,086
Oregon	2,000,329	1,643,881	356,448
Pennsylvania	27,057,322	11,379,397	15,677,925
Rhode Island	863,300	509,895	353,405
South Carolina	1,433,552	934,931	498,621
South Dakota	1,379,180	354,050	1,025,130
Tennessee	7,877,454	5,969,710	1,907,744
Texas	7,928,011	2,993,171	4,934,840
Utah	1,123,954	---	1,123,954
Vermont	2,635,034	1,135,018	1,500,016
Virginia	6,562,025	2,776,413	3,785,612
Washington	6,030,123	1,454,408	4,575,715
West Virginia	11,054,099	3,484,610	7,569,489
Wisconsin	4,719,469	1,113,415	3,606,054
Wyoming	2,103,003	1,355,507	747,496
Total	$325,313,710	$95,494,463	$230,019,247

*Interceptors, outfalls, additions, enlargements, and alterations to plants, etc.

B. Collecting Sewer Construction

Collecting sewer construction for 1959 totaled $335.8 million. Tables 9, 10, and 11 analyze the contract award data which was specified as purely collecting sewers (i.e., $311.9 million), and do not reflect any portion of the combination projects. The tabulation of the collecting sewer contract awards by States appears in Table 3 of Section I.

The collecting sewer classification does not include storm sewers. Over 70 percent of the dollar value of contract awards occurred in locations of less than 250,000 population. There were no single contracts awarded in excess of $5 million.

TABLE 9

CONTRACT AWARDS--COLLECTING SEWER CONSTRUCTION--1959
BY POPULATION SIZE GROUPS

POPULATION SIZE GROUP	COLLECTING SEWERS			
	No.	Dollars	Cumulative**	
			No. %	$ %
Unknown population size	111	5,489,949	(*)	(*)
Under 500	58	3,075,471	2.0	1.0
500-1,000	99	11,037,222	5.5	4.6
1,000-2,500	168	16,435,901	11.3	10.0
2,500-5,000	234	18,835,247	19.4	16.1
5,000-10,000	300	35,253,290	29.8	27.6
10,000-25,000	441	45,782,983	45.2	42.6
25,000-50,000	349	38,015,216	57.3	55.0
50,000-100,000	213	18,945,252	64.7	61.2
100,000-250,000	263	36,657,564	73.8	73.1
250,000-over	754	82,435,055	100.0	100.0
Total	2,990	311,943,120	---	---
*The unknown population size as a percent of the grand total			3.7	1.8

**This is based on the known population groups.

TABLE 10

CONTRACT AWARDS--COLLECTING SEWER CONSTRUCTION--1959
BY CONTRACT SIZE GROUPS

CONTRACT SIZE (Dollars)	COLLECTING SEWERS			
	No.	Dollars	Cumulative	
			No. %	$ %
Under 10,000	599	3,175,260	20.0	1.0
10,000-25,000	678	11,027,193	42.7	4.6
25,000-50,000	493	17,743,984	59.2	10.2
50,000-100,000	460	34,713,129	74.6	21.4
100,000-250,000	507	76,315,052	91.5	45.8
250,000-500,000	135	45,344,068	96.1	60.4
500,000-1,000,000	82	55,216,903	98.8	78.1
1,000,000-5,000,000	36	68,407,531	100.0	100.0
5,000,000-over	---	---	100.0	100.0
Total	2,990	311,943,120	---	---

TABLE 11

CONTRACT AWARDS—COLLECTING SEWER CONSTRUCTION—1959
BY DRAINAGE BASINS

DRAINAGE BASINS	COLLECTING SEWERS		DRAINAGE BASINS	COLLECTING SEWERS	
	No.	Dollars		No.	Dollars
Northeast	263	19,759,752	Colorado River	43	4,359,731
North Atlantic	281	49,517,092	Western Gulf	280	27,251,201
Southeast	155	28,031,200	Pacific Northwest	96	16,105,930
Tennessee River	20	3,603,092	California	527	40,448,965
Ohio River	310	31,374,597	Great Basin	30	2,579,193
Lake Erie	119	10,165,753	Alaska	2	359,455
Upper Mississippi	279	34,658,652	Hawaii	9	1,660,297
Western Great Lakes	220	21,460,202			
Missouri River	210	11,264,621			
Southwest-Lower Mississippi	146	9,343,387	Total	2,990	311,943,120

C. Water Works Construction

The water works data are broken down into four categories, namely, SOURCE, TREATMENT, DISTRIBUTION, and MISCELLANEOUS. The "SOURCE" group includes contracts awarded for wells, surface source development, and transmission lines. The "TREATMENT" area includes contracts for plants and auxiliary facilities. The "DISTRIBUTION" category includes contracts for ground storage, elevated tanks, and distribution systems. The "MISCELLANEOUS" classification includes contracts for pumping facilities and for water systems in general. When it is not possible to code a contract that is known to pertain to water into source, treatment, or distribution then it is included in the totals for miscellaneous.

Contract awards for water works construction in 1959, including an apportioned amount from the combination contracts, totaled $503.9 million. The tables below refer only to contracts that pertain exclusively to water works (i.e., $481.3 million). There were ten contracts awarded in excess of $5 million; three of these were in excess of $14 million for source facilities.

TABLE 12

CONTRACT AWARDS—WATER WORKS CONSTRUCTION—1959
BY POPULATION SIZE GROUPS

POPULATION SIZE GROUP	TOTAL		SOURCE		TREATMENT		DISTRIBUTION		MISCELLANEOUS**	
	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars
Unknown population size....	331	16,513,259	104	4,386,177	15	1,710,376	111	4,462,480	101	5,734,226
Under 500.....	214	9,940,327	55	1,820,363	10	316,060	101	4,741,066	48	3,062,838
500-1,000.....	259	14,684,668	46	1,250,761	16	1,197,905	143	7,816,644	54	4,419,358
1,000-2,500.....	483	25,676,949	74	3,432,503	35	2,525,966	301	14,069,143	73	5,649,337
2,500-5,000.....	412	31,262,534	68	4,022,310	30	2,775,508	255	20,237,151	59	4,227,565
5,000-10,000.....	416	43,520,591	74	5,583,780	17	6,989,012	260	22,279,871	65	8,667,928
10,000-25,000.....	490	46,488,791	80	8,235,592	17	3,134,144	311	23,551,437	82	11,567,618
25,000-50,000.....	281	45,284,332	63	26,510,475	16	4,062,528	154	10,310,071	48	4,401,258
50,000-100,000.....	205	28,960,115	41	11,237,231	6	1,114,105	122	11,392,729	36	5,216,050
100,000-250,000.....	286	53,917,992	37	17,211,418	12	5,549,227	209	15,888,317	28	15,269,030
250,000-over.....	614	165,081,462	92	94,947,940	26	13,662,031	417	40,335,482	79	16,136,009
Total.....	3,991	481,331,020	734	178,838,550	200	43,036,862	2,384	175,084,391	673	84,371,217

See footnotes at end of table

TABLE 12

CONTRACT AWARDS—WATER WORKS CONSTRUCTION—1959
BY POPULATION SIZE GROUPS—Continued

POPULATION SIZE GROUP	TOTAL (Cumulative)***		SOURCE (Cumulative)***		TREATMENT (Cumulative)***		DISTRIBUTION (Cumulative)***		MISCELLANEOUS** (Cumulative)***	
	No. %	$ %	No. %	$ %	No. %	$ %	No. %	$ %	No. %	$ %
Unknown population size.....	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Under 500.....	5.8	2.1	8.7	1.0	5.4	.8	4.4	2.8	8.4	3.9
500-1,000.....	12.9	5.3	16.0	1.8	14.1	3.7	10.7	7.4	17.8	9.5
1,000-2,500.....	26.1	10.8	27.8	3.7	33.0	9.8	24.0	15.6	30.6	16.7
2,500-5,000.....	37.4	17.5	38.6	6.0	49.2	16.5	35.2	27.5	40.9	22.1
5,000-10,000.....	48.7	26.9	50.3	9.2	58.4	33.4	46.6	40.5	52.3	33.0
10,000-25,000.....	62.1	36.9	63.0	14.0	67.6	41.0	60.3	54.3	64.6	47.9
25,000-50,000.....	69.8	46.7	73.0	29.2	76.2	50.8	67.1	60.3	75.0	53.4
50,000-100,000.....	75.4	52.9	79.2	35.6	79.5	53.5	72.5	67.0	81.3	60.1
100,000-250,000.....	83.2	64.5	85.4	45.5	85.9	66.9	81.7	76.3	86.2	79.5
250,000-over.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
*The unknown population as a percent of the grand total.....	8.3	3.4	14.2	2.6	7.5	4.0	4.7	2.5	15.0	6.8

**This includes separate contracts for pumping facilities and other water works contracts that cover more than one of the above divisions.

***This is based on the known population groups.

TABLE 13

CONTRACT AWARDS—WATER WORKS CONSTRUCTION—1959
BY CONTRACT SIZE GROUPS

CONTRACT SIZE GROUP (Dollars)	TOTAL		SOURCE		TREATMENT		DISTRIBUTION		MISCELLANEOUS*	
	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars
Under 10,000	733	3,722,673	198	965,191	18	102,539	441	2,212,795	76	442,148
10,000-25,000	907	14,734,134	179	2,763,869	33	542,869	560	9,248,581	135	2,178,815
25,000-50,000	668	23,705,169	98	3,411,214	26	989,957	434	15,409,942	110	3,894,056
50,000-100,000	847	57,063,569	76	5,321,468	38	2,596,828	566	37,634,066	167	11,511,207
100,000-250,000	525	80,656,731	92	14,817,045	47	7,566,635	272	40,891,906	114	17,381,145
250,000-500,000	170	58,411,278	46	16,191,973	20	7,149,231	59	20,123,638	45	14,946,436
500,000-1,000,000	89	59,410,601	23	15,815,115	12	7,968,294	36	24,227,825	18	11,399,367
1,000,000-5,000,000	42	87,686,775	14	36,037,151	6	16,120,509	16	25,335,638	6	10,193,477
5,000,000-over	10	95,940,090	8	83,515,524					2	12,424,566
Total	3,991	481,331,020	734	178,838,550	200	43,036,862	2,384	175,084,391	673	84,371,217

See footnote at end of table.

CONTRACT SIZE GROUP (Dollars)	TOTAL (Cumulative)		SOURCE (Cumulative)		TREATMENT (Cumulative)		DISTRIBUTION (Cumulative)		MISCELLANEOUS* (Cumulative)	
	No. %	$ %	No. %	$ %	No. %	$ %	No. %	$ %	No. %	$ %
Under 10,000	18.4	.8	27.0	.5	9.0	.2	18.5	1.3	11.3	.5
10,000-25,000	41.8	3.8	51.4	2.1	25.5	1.5	42.0	6.5	34.1	3.1
25,000-50,000	57.8	8.8	64.7	4.0	38.5	3.8	60.2	15.3	47.7	7.7
50,000-100,000	79.1	20.6	75.1	7.0	57.5	9.8	83.9	36.8	72.5	21.4
100,000-250,000	92.2	37.4	87.6	15.3	81.0	27.4	95.3	60.2	89.5	42.0
250,000-500,000	96.5	49.5	93.9	24.3	91.0	44.0	97.8	71.7	96.1	59.7
500,000-1,000,000	98.7	61.9	97.0	33.2	97.0	62.5	99.3	85.5	98.8	73.2
1,000,000-5,000,000	99.7	80.1	98.9	53.3	100.0	100.0	100.0	100.0	99.7	85.3
5,000,000-over	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*This includes separate contracts for pumping facilities and other water works contracts that cover more than one of the above divisions.

TABLE 14

CONTRACT AWARDS—WATER WORKS CONSTRUCTION—1959
BY DRAINAGE BASINS

DRAINAGE BASIN	TOTAL		SOURCE		TREATMENT		DISTRIBUTION		MISCELLANEOUS*	
	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars	No.	Dollars
Northeast	372	54,468,730	68	24,304,105	14	2,785,802	236	16,239,870	54	11,138,953
North Atlantic	517	55,852,365	90	12,861,839	37	7,399,986	316	25,198,573	74	10,391,967
Southeast	316	46,520,349	72	24,353,703	29	4,192,843	158	10,909,903	57	7,063,900
Tennessee River	41	5,413,685	2	109,951	3	509,938	24	2,099,652	12	2,694,144
Ohio River	432	36,675,989	71	4,703,536	30	4,275,996	261	17,792,556	70	9,903,901
Lake Erie	104	6,617,445	19	2,352,520	4	171,349	73	3,153,764	8	939,812
Upper Mississippi	345	40,398,987	80	12,937,324	22	7,998,001	183	9,644,627	60	9,819,035
Western Great Lakes	237	25,651,531	51	8,606,475	4	1,093,069	140	12,032,100	42	3,919,887
Missouri River	226	16,025,356	39	4,023,918	19	4,938,853	123	4,586,747	45	2,475,838
Southwest-Lower Mississippi	287	25,167,333	53	5,205,962	15	2,912,905	177	13,157,124	42	3,891,342
Colorado River	60	11,135,685	11	3,863,853	3	578,771	35	5,183,462	11	1,509,599
Western Gulf	490	41,594,806	52	7,831,547	7	923,889	343	23,699,398	88	9,139,972
Pacific Northwest	167	28,940,657	30	18,351,127	2	17,128	103	9,136,202	32	1,436,200
California	342	72,936,750	79	40,607,920	10	5,219,965	189	19,448,002	64	7,660,863
Great Basin	45	10,991,548	15	8,298,135	1	18,367	18	783,693	11	1,891,353
Alaska	6	1,405,532	1	106,307	-	-	3	1,212,151	2	87,074
Hawaii	4	1,534,272	1	320,328	-	-	2	806,567	1	407,377
Total	3,991	481,331,020	734	178,838,550	200	43,036,862	2,384	175,084,391	673	84,371,217

*This includes separate contracts for pumping facilities and other water works contracts that cover more than one of the above divisions.

TABLE 15

CONTRACT AWARDS—WATER WORKS CONSTRUCTION—1959
BY STATES

STATE	TOTAL	SOURCE	TREATMENT	DISTRIBUTION	MISCELLANEOUS*
Alabama	$ 22,117,897	$ 16,735,187	$ 284,214	$ 3,259,768	$ 1,838,728
Alaska	1,405,532	106,307	-	1,212,151	87,074
Arizona	8,849,530	3,237,592	260,038	4,426,473	925,427
Arkansas	4,003,993	158,269	992,001	1,789,756	1,063,967
California	81,958,078	48,472,021	5,238,332	19,763,514	8,484,211
Colorado	2,237,003	1,122,396	664,318	191,790	258,499
Connecticut	3,539,339	1,022,698	786,820	1,510,108	219,713
Delaware	1,419,006	15,000	654,623	-	749,383
District of Columbia	1,138,664	365,296	-	324,631	448,737
Florida	7,239,308	1,798,568	1,157,263	2,446,465	1,837,012
Georgia	3,418,990	621,327	158,848	2,002,846	635,969
Hawaii	1,534,272	320,328	-	806,567	407,377
Idaho	500,492	307,726	-	52,966	139,800
Illinois	21,516,236	6,025,621	7,240,487	4,473,389	3,776,739
Indiana	5,465,418	491,031	338,486	3,574,400	1,061,501
Iowa	2,643,536	584,261	59,913	1,361,153	638,209
Kansas	3,825,173	653,476	74,074	1,463,194	1,634,429
Kentucky	8,184,799	230,755	860,903	4,436,799	2,656,342
Louisiana	7,082,243	933,276	1,317,567	4,414,715	416,685
Maine	567,963	-	262,050	270,541	35,372
Maryland	14,282,078	4,342,924	3,559,607	1,592,022	4,787,525
Massachusetts	25,277,898	18,734,795	67,300	5,450,218	1,025,585
Michigan	13,455,066	3,761,498	-	7,924,950	1,768,618
Minnesota	7,544,574	2,714,128	335,750	4,102,842	391,854
Mississippi	955,868	329,328	-	558,222	68,318
Missouri	12,654,402	4,106,554	825,674	1,713,837	6,008,337
Montana	4,195,535	2,302,229	1,056,131	503,758	333,417
Nebraska	1,220,162	231,393	49,218	807,174	132,377
Nevada	135,989	28,854	-	73,765	33,370
New Hampshire	1,358,813	26,422	778,517	124,446	429,428
New Jersey	10,738,825	916,655	549,289	8,496,554	776,327
New Mexico	1,121,881	40,657	-	934,224	147,000
New York	34,439,383	9,558,736	1,035,340	13,588,693	10,256,614
North Carolina	8,210,706	1,638,818	2,032,551	1,754,537	2,784,800
North Dakota	3,352,437	-	2,834,293	461,772	56,372
Ohio	17,391,391	4,268,623	1,849,021	7,996,121	3,277,626
Oklahoma	7,820,312	1,512,179	351,345	4,665,881	1,290,907
Oregon	1,954,695	663,315	-	1,057,231	234,149
Pennsylvania	21,892,778	2,350,940	2,240,278	12,272,300	5,029,260
Rhode Island	639,010	-	-	639,010	-
South Carolina	5,707,547	3,352,846	559,957	1,245,322	549,410
South Dakota	1,249,990	511,978	303,714	408,098	26,200
Tennessee	6,313,660	182,679	874,938	2,556,914	2,699,129
Texas	44,234,591	9,757,725	1,087,831	24,163,276	9,225,709
Utah	2,154,808	434,034	-	664,305	1,056,469
Vermont	157,272	3,178	-	39,494	114,600
Virginia	5,217,616	1,817,185	1,321,964	1,499,158	579,309
Washington	26,391,530	17,372,086	17,128	7,952,857	1,049,459
West Virginia	1,000,256	104,351	-	273,211	622,694
Wisconsin	11,042,757	4,573,303	957,019	3,550,474	1,961,961
Wyoming	571,718	-	-	232,499	339,219
Total	$481,331,020	$178,838,550	$43,036,862	$175,084,391	$84,371,217

*This includes separate contracts for pumping facilities and other water works contracts that cover more than one of the above divisions.

D. Combination Construction

Combination contracts are made up of projects that cover more than one of the three major categories, (1) sewage treatment, (2) collecting sewers, and (3) water works. This category amounted to $70.1 million represented by 875 contracts. The combination contract awards by States appear in Table 3 of Section I.

TABLE 16

CONTRACT AWARDS--COMBINATION CONSTRUCTION--1959
BY POPULATION SIZE GROUP

POPULATION SIZE GROUP	COMBINATIONS**			
	No.	Dollars	Cumulative***	
			No. %	$ %
Unknown population size	64	6,177,817	(*)	(*)
Under 500	17	1,329,074	2.0	2.1
500-1,000	41	3,431,556	7.1	7.5
1,000-2,500	78	4,876,692	16.7	15.1
2,500-5,000	56	5,326,365	23.6	23.5
5,000-10,000	88	9,039,781	34.5	37.5
10,000-25,000	63	6,519,873	42.3	47.8
25,000-50,000	68	5,060,250	50.7	55.7
50,000-100,000	36	4,056,262	55.1	62.1
100,000-250,000	185	8,392,209	77.9	75.1
250,000 and over	179	15,877,576	100.0	100.0
Total	875	70,087,455		
*The unknown population size as a percent of the grand total			7.3	8.8

**This includes contracts whose descriptive information covers more than a single area (i.e., sewage treatment, sewers, or water works).
***This is based on the known population groups.

TABLE 17

CONTRACT AWARDS--COMBINATION CONSTRUCTION--1959
BY CONTRACT SIZE GROUP

CONTRACT SIZE GROUP (Dollars)	COMBINATIONS*			
	No.	Dollars	Cumulative	
			No. %	$ %
Under 10,000	191	926,944	21.8	1.3
10,000-25,000	253	4,175,252	50.7	7.3
25,000-50,000	157	5,575,576	68.7	15.2
50,000-100,000	112	7,826,206	81.5	26.4
100,000-250,000	100	15,455,524	92.9	48.5
250,000-500,000	36	11,424,090	97.0	64.8
500,000-1,000,000	19	13,780,336	99.2	84.4
1,000,000-5,000,000	7	10,923,527	100.0	100.0
5,000,000-over	---	---	100.0	100.0
Total	875	70,087,455	---	---

*This includes contracts whose descriptive information covers more than a single area (i.e., sewage treatment, sewers, or water works).

TABLE 16

CONTRACT AWARDS—COMBINATION CONSTRUCTION—1959
BY DRAINAGE BASINS

DRAINAGE BASIN	COMBINATIONS*		DRAINAGE BASIN	COMBINATIONS*	
	No.	Dollars		No.	Dollars
Northeast	27	1,673,706	Southwest-Lower Mississippi	51	4,564,586
North Atlantic	364	20,750,231	Colorado River	5	668,160
Southeast	90	14,628,272	Western Gulf	65	6,499,358
Tennessee River	3	438,800	Pacific Northwest	6	346,978
Ohio River	32	1,599,021	California	20	2,414,059
Lake Erie	20	1,591,829	Great Basin	2	204,087
Upper Mississippi	92	6,623,723	Alaska	7	1,104,645
Western Great Lakes	58	4,356,308	Hawaii	-	-
Missouri River	33	2,623,692	Total	875	70,087,455

*This includes contracts whose descriptive information covers more than a single area (i.e., sewage treatment, sewers, or water works).

* U.S. GOVERNMENT PRINTING OFFICE : 1960 O - 554172